S7. CLINICAL SIGNIFICANCE OF HISTONE DEACETYLASE 6 EXPRESSION IN BREAST CANCER

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Gene expression patterns using microarray analysis in MCF-7 cells showed that the histone acetylase 6 (HDAC6) gene was one of the early-responsive oestrogen-induced genes (*J Mol Endocrinol* 2002, **29**). This led us to hypothesise that there was a link between levels of HDAC6 expression and the hormone-dependent potential of breast cancer. In the present study, the level of HDAC6 mRNA expression was analysed using quantitative real-time reverse transcriptase-polymerase chain reaction (RT-PCR) in 158 patients withinvasive breast cancer and the protein expressions were also determined by immunohistochemistry. HDAC6 mRNA was expressed at significantly higher levels in breast cancer patients with small tumours measuring less than 2 cm, without a high histological tumour grade, and in oestrogen receptor (ER) α- and progesterone receptor (PgR)-positive tumours. Patients expressing high levels of HDAC6 mRNA have a statistically better prognosis than those expressing low levels. Furthermore, the patients with high levels of HDAC6 mRNA tended to be more responsive to endocrine treatments than those with low levels. Specific staining was found in the nucleus of some normal epithelial cells and in the cytoplasm of most of the cancer cells. However, no relationship was found between HDAC6 cytoplasmic expression and any clinicopathological factors or survival. We conclude that the expression levels of HDAC6 mRNA could have potential as a prognostic and predictive marker for endocrine treatment in breast cancer.

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